

| Notice of Allowability | Application No. | Applicant(s) | |
|-------------------------------|-------------------------|---------------------|--|
| | 10/616,128 | KAPOOR ET AL. | |
| | Examiner DEBBIE M LE | Art Unit 2167 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. This communication is responsive to 7/8/03.
2. The allowed claim(s) is/are 1-52.
3. The drawings filed on 08 July 2003 are accepted by the Examiner.
4. Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All
 - b) Some*
 - c) None
 of the:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) hereto or 2) to Paper No./Mail Date _____.
 - (b) including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. Notice of References Cited (PTO-892)
2. Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date 4/9/04
4. Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. Notice of Informal Patent Application (PTO-152)
6. Interview Summary (PTO-413),
Paper No./Mail Date _____.
7. Examiner's Amendment/Comment
8. Examiner's Statement of Reasons for Allowance
9. Other _____.

DETAILED ACTION

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

The application has been amended as follows:

In page 1, line 9, ~~delete (Attorney Docket No. Pillar 709)~~

In page 1, lines 11-12, ~~delete (Attorney Docket No. Pillar 713)~~

In page 1, lines 15-16, ~~delete (Attorney Docket No. Pillar 711), Express Mail Label No. EJ039579912US~~

Reasons for Allowance

The following is an examiner's statement of reasons for allowance:

Claims 1-52 are allowable over the prior art of record because the prior art of record fails to teach or fairly suggest maintaining a space map block entry (b,e), wherein b and e represent index table entries, b indicates a first snapshot that uses the first block, and e indicates a last snapshot that uses the first block.

In contrast, the closest prior art, U.S Patent 6,636,879 B1, issued to Lewis Doucette et al, on October 21, 2003. The subject matter disclosed therein is the system and method determine the relative vacancy of collections of storage blocks by using an array of binary numbers in a spacemap block. The array of binary numbers in each single space map block represents the allocation of all blocks for all snapshots and the active file system (see Fig. 2, col. 7, lines 9-15), but fails to anticipate or render the above cited limitations obvious.

U.S Patent Application Publication No. 2003/0018878 A1, publication to Dorward et al, on January 23, 2003. The subject matter disclosed therein is a method and system for managing archival data storage, snapshots and active file system by utilizing an index hash table (see Fig. 1, # 114, Fig. 4, par. 0005, 0051, 0068).

Thus, prior art of record neither renders obvious nor anticipates the combination of claim limitations in light of the specification.

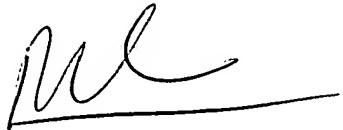
Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DEBBIE M LE whose telephone number is (571) 272-4111. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, JOHN BREENE can be reached on (571) 272-4107. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

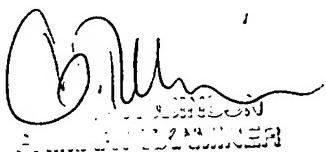
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



DEBBIE M LE
Examiner
Art Unit 2167

Debbie Le

Feb. 4, 2005.



JOHN BREENE
Supervisory Examiner